

A MODULAR CONNECTOR FOR FOUNTAINS

FIELD OF THE INVENTION

[0001] The present invention relates to connectors and more specifically to quick-type modular connectors for use in fountains.

RELATED APPLICATIONS

[0002] This application claims priority based on a provisional patent application entitled Fountain, serial number 60/206,411 filed on May 23, 2000.

BACKGROUND OF THE INVENTION

[0003] Decorative placements, for example, fountains, statuary, monuments, and bird baths, are fabricated in multiple sections to allow for easier packaging and shipment. Various ways have been provided to connect the sections together so as to assemble a placement. Sections of traditional fountains, whether made of a natural or man-made material, are typically fastened together using threaded fasteners, such as bolts and nuts or threaded inserts. Sections of statuary or bird baths are often interconnected by having mating sections with a socket formed in one and having a pin or dowel protruding from the other. Sections of monuments often are interconnected using the dowel/socket mechanism, as described above, or by grouting the sections together.

[0004] Each of these prior connection mechanisms and methods require the assembler to have tools and assembly knowledge in order to assemble the placement. Thus, a

mechanism is needed which allows the easy assembly of a placement from multiple sections without the need for tools.

BRIEF SUMMARY OF THE INVENTION

[0005] The present invention provides a new and advantageous connector that allows interconnecting sections of a fountain to be assembled using few, if any, hand tools. The present invention also provides an interconnection structure for sections of a fountain that
5 allow the sections to be readily engagable and disengagable from one another.

[0006] More specifically, the present invention provides a modular connector including a collar having a first collar portion, a second collar portion, a third collar portion, two ears, two flanges and at least two mounting tabs. The first collar portion has a first outside diameter and a first inside diameter. The second collar portion is disposed
10 between the first collar portion and the third collar portion and has the first outside diameter and a second inside diameter, the second inside diameter being smaller than the first inside diameter. The third collar portion has a second outside diameter and the first inside diameter, the second outside diameter being smaller than the first outside diameter. The two ears oppose one another, each ear extending from the second collar portion
15 through the first collar portion and above the first collar portion, each ear disposed between the first inside diameter and the second inside diameter. The two flanges oppose one another, each flange extends inwardly from the first collar portion to form a channel with the second collar portion. The at least two mounting tabs extend outwardly from the third collar portion and are approximately equally spaced from one another.

[0007] The present invention also provides a modular connector system including a first collar and a second collar. Each collar has a first collar portion, a second collar portion, a third collar portion, two ears, two flanges and at least two mounting tabs. The first collar portion has a first outside diameter and a first inside diameter. The second collar portion is disposed between the first collar portion and the third collar portion and has the first outside diameter and a second inside diameter, the second inside diameter being smaller than the first inside diameter. The third collar portion has a second outside diameter and the first inside diameter, the second outside diameter being smaller than the first outside diameter. The two ears oppose one another, each ear extending from the second collar portion through the first collar portion and above the first collar portion, each ear disposed between the first inside diameter and the second inside diameter. The two flanges oppose one another, each flange extends inwardly from the first collar portion to form a channel with the second collar portion. The at least two mounting tabs extend outwardly from the third collar portion and are approximately equally spaced from one another. The first collar is engagable with the second collar by engaging the ears of the first collar with the flanges of the second collar and the ears of the second collar with the flanges of the first collar.

[0008] In addition, the present invention provides a modular fountain having a top portion, a base and a bayonet connector. The top portion has a cavity therein and a lower surface, the lower surface has an opening extending therethrough for access to the cavity. The base supports the top portion and has a cavity therein, an upper surface and a lower

surface, the upper surface having an opening extending therethrough, the lower surface for resting on a support surface. The bayonet connector is for removably connecting the top portion and the base. The bayonet connector includes a first portion and a second portion. The first portion of the bayonet connector is rigidly disposed in the opening
5 extending through the lower surface of the top portion. The second portion of the bayonet connector is rigidly disposed in the opening extending through the upper surface of the base. The first portion of the bayonet connector is engagable with the second portion of the bayonet connector. The bayonet connector has a passage therethrough so that, when the first portion of the bayonet connector is engaged with the second portion of the
10 bayonet connector, a passageway exists between the cavity of the top portion and the cavity of the base.

[0009] Moreover, the present invention provides a modular fountain having a pump, a statue, a bowl, a pump housing, a first bayonet connector, a base, a second bayonet connector and a tube. The pump circulates water in the modular fountain and has a power
15 cord for supplying electrical power to the pump. The statue has a cavity therein and a lower surface, the lower surface has an opening extending therethrough for access to the cavity. The bowl has an upper curved surface defining a concave portion for storing water and a lower surface, the bowl has an opening extending through the lower surface and the upper curved surface. The pump housing supports the statue and contains the
20 pump. The pump housing has a wall with an inner surface, the wall connected to and extending from the upper curved surface of the bowl and a top having an inner surface.

The upper curved surface of the bowl, the inner surface of the wall and the inner surface of the top define an internal portion of the pump housing. The top has an opening extending therethrough for access to the internal portion of the pump housing. The pump housing is disposed on the upper curved surface of the bowl so that the opening in the bowl allows access to the internal portion of the pump housing. The first bayonet connector is for removably connecting the statue and the pump housing. The first bayonet connector includes a first portion rigidly disposed in the opening extending through the lower surface of the statue and a second portion rigidly disposed in the opening extending through the top of the pump housing. The first portion of the first bayonet connector is engagable with the second portion of the first bayonet connector. The first bayonet connector has a passage therethrough so that, when the first portion of the first bayonet connector is engaged with the second portion of the first bayonet connector, a passageway exists between the cavity of the statue and the internal portion of the pump housing. The base supports the bowl and has a cavity therein, an upper surface and a lower surface. The upper surface has an opening extending therethrough and the lower surface rests on a support surface. The second bayonet connector is for removably connecting the bowl and the base. The second bayonet connector includes a first portion rigidly disposed in the opening in the bowl and a second portion rigidly disposed in the opening extending through the upper surface of the base. The first portion of the second bayonet connector is engagable with the second portion of the second bayonet connector. The second bayonet connector has a passage therethrough so that, when the first portion of the second bayonet connector is engaged with the second portion of the second bayonet

connector, a passageway exists between the internal portion of the pump housing and the cavity of the base. The tube extends through the opening in the bowl, wherein, when the statue is connected to the pump housing via the first bayonet connector and the bowl is connected to the base via the second bayonet connector, the tube extends between the
 5 cavity of the statue and the cavity of the base and the tube is capable of providing a passageway for the power cord of the pump from the pump housing into the cavity of the base.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Other advantages and features of the invention will become more apparent with
 10 reference to the following detailed description of the invention in connection with the accompanying drawings, in which:

FIGURE 1 is an exploded partial cross-sectional side view of a fountain of the present invention;

FIGURE 2 is a partial cross-sectional side view of a fountain of the present
 15 invention;

FIGURE 3 is a pictorial view of a modular or bayonet-type connector of the present invention;

FIGURE 4 is a top view of a modular or bayonet-type connector of the present invention; and

FIGURE 5 is a bottom view of a modular or bayonet-type connector of the present
 20 invention.

DETAILED DESCRIPTION OF THE INVENTION

[0011] While the making and using of various embodiments of the present invention are discussed herein in terms of modular or bayonet-type connectors for fountains, it should be appreciated that the present invention provides many applicable inventive concepts that can be embodied in a wide variety of specific contexts. The specific
5 embodiments discussed herein are merely illustrative of specific ways to make and use the invention and are not meant to limit its scope in any way.

[0012] The present invention provides a new and advantageous connector that allows interconnecting sections of a fountain to be assembled using few, if any, hand tools. The
10 present invention also provides an interconnection structure for sections of a fountain that allow the sections to be readily engagable and disengagable from one another.

[0013] FIGURE 1 illustrates an exploded partial cross-sectional side view of a fountain of the present invention. A pump 10 is provided having a power cord 12 for supplying electrical power to the pump 10. The fountain has a statue 14, which has a cavity 16
15 therein and a lower surface 18. The statue 14 has an opening 20 extending through the lower surface 18 into the cavity 16.

[0014] The fountain of the present invention also has a bowl 22 with a curved upper surface 24 defining a concave portion 26 for storing water and a lower surface 28, the bowl further having an opening 30 extending through the lower surface and the curved
20 upper surface 24. A pump housing 32, for supporting the statue 14 and for containing the pump 10, has a wall 34 with an inner surface 36. The wall is connected to and extends

from the curved upper surface 24 of the bowl 22. The pump housing 32 further has a top 38 with an inner surface 40. The inner surface 40 of the top 38, the inner surface 36 of the wall 34, and the curved upper surface 24 of the bowl 22 define an interior portion 42 of the pump housing 32. The top 38 of the pump housing 32 has an opening 44 extending
5 therethrough for access to the interior portion 42 of the pump housing 32. The pump housing 32 is disposed on the curved upper surface 24 of the bowl 22 so that the opening 30 in the bowl 22 allows access to the interior portion 42 of the pump housing 32.

[0015] A first bayonet connector 46, made up of a first portion 48 and a second portion 50, is used to removably connect the statue 14 and the pump housing 32. The first portion
10 48 of the first bayonet connector 46 is rigidly disposed in the opening 20 extending through the lower surface 18 of the statue 14. The second portion 50 of the first bayonet connector 46 is rigidly disposed in the opening 44 extending through the top 38 of the pump housing 32. The first portion 48 of the first bayonet connector 46 is engagable with the second portion 50 of the first bayonet connector 46. The first bayonet connector 46
15 has a passage 52 therethrough so that, when the first portion 48 of the first bayonet connector 46 is engaged with the second portion 50 of the first bayonet connector 46, a passageway 51 exists between the cavity 16 of the statue 14 and the interior portion 42 of the pump housing 32.

[0016] The fountain has a base 52 for supporting the bowl 22 and which has a cavity 54
20 within. The base 52 further has an upper surface 56 and a lower surface 58. The upper surface 56 has an opening 60 extending therethrough. The lower surface 58 is for resting

on a support surface 62. A second bayonet connector 64 is made up of a first portion 66, which is rigidly disposed in the opening 30 in the bowl 22, and a second portion 68, which is rigidly disposed in the opening 60 extending through the upper surface 56 of the base 52. The first portion 66 of the second bayonet connector 64 is engagable with the
5 second portion 68 of the second bayonet connector 64 to fix the bowl 22 to the base 52. When the first portion 66 of the second bayonet connector 64 is engaged with the second portion 68 of the second bayonet connector 64, a passageway 70 exists between the interior portion 42 of the pump housing 32 and the cavity 54 in the base 52.

[0017] FIGURE 2 illustrates a partial cross-sectional side view of a fountain of the
10 present invention. Now referring to FIGURES 1 and 2, when the fountain is assembled, a tube 72 extends through the passageway 70 between the pump housing 32 and the base 52, so that when the statue 14 is connected to the pump housing 32 via the first bayonet connector 46 and the bowl 22 is connected to the base 52 via the second bayonet connector 64, the tube 72 extends between the cavity 16 of the statue 14 and cavity 54 of
15 the base 52. The tube 72 is capable of providing a passageway for the electrical cord 12 of the pump 10, as well as other elements, from the pump housing 22 into the cavity 54 of the base 52.

[0018] Referring now to FIGURES 3, 4 and 5, which illustrate various views a modular or bayonet-type connector of the present invention, the modular or bayonet-type
20 connector includes a collar 48, 50, 66 and 68 having a first collar portion (the top portion of 48, 50, 66 and 68 shown in FIGURES 3 and 4), a second collar portion (the bottom

portion of 48, 50, 66 and 68 shown in FIGURES 3, 4 and 5), a third collar portion (the top portion of 48, 50, 66 and 68 shown in FIGURE 5), two ears 100 and 102, two flanges 104 and 106 and at least two mounting tabs 110. The first collar portion has a first outside diameter 112 and a first inside diameter 114. The second collar portion is disposed
5 between the first collar portion and the third collar portion and has the first outside diameter 112 and a second inside diameter 116, the second inside diameter 116 being smaller than the first inside diameter 114. The third collar portion has a second outside diameter 118 and the first inside diameter 114, the second outside diameter 118 being smaller than the first outside diameter 112. The two ears 100 and 102 oppose one
10 another, each ear 100 and 102 extending from the second collar portion through the first collar portion and above the first collar portion, each ear 100 and 102 disposed between the first inside diameter 114 and the second inside diameter 116. The two flanges 104 and 106 oppose one another, each flange 104 and 106 extends inwardly from the first collar portion to form a channel with the second collar portion. The at least two mounting
15 tabs 110 extend outwardly from the third collar portion and are approximately equally spaced from one another.

[0019] The present invention also provides a modular connector system including a first collar and a second collar. Each collar is the same as described in the previous paragraph. The first collar is engagable with the second collar by engaging the ears 100
20 and 102 of the first collar with the flanges 104 and 106 of the second collar and the ears of the second collar 100 and 102 with the flanges 104 and 106 of the first collar.

[0020] In one embodiment of the present invention, each of the bayonet portions 48, 50, 66, and 68 are equivalent; that is, they have identical structures. Thus, the following description of the first portion 48 and the second portion 50 of the first bayonet connector 46 applies equally to the first portion 66 and the second portion 68 of the second bayonet connector 64. In this embodiment, each of the first 48 and second 50 portions of the first bayonet connector 46 has a first ear 100 and a second ear 102. Each of the portions 48 and 50 also has a first flange 104 and a second flange 106. When the first portion 48 is mated to the second portion 50 and the first portion 48 is rotated with respect to the second portion 50 about a common, central axis 108, the first ear 100 of the first portion 48 engages with the first flange 104 of the second portion 50, and the second ear 102 of the first portion 48 engages with the second flange 106 of the second portion 50. Further, the first ear 100 of the second portion 50 engages with the first flange 104 of the first portion 48, and the second ear 102 engages with the second flange 106 of the first portion 48. In this way, the two portions 48 and 50 engage each other and become fixed with respect to each other.

[0021] Also, as can be seen, the first ear 100 of the first portion 48 can engage with the second flange 106 of the second portion 50, and so forth, as, in this embodiment, either ear of one portion of a connector is capable of being engaged with either flange of the other portion of the connector.

[0022] Accordingly, the present invention is a placement, for example, a fountain, having a modular, bayonet-type connector which is used to interconnect sections of the

placement. In the case of a fountain, the invention has a pump for circulating water in the fountain and two or more sections that are, in a preferred embodiment, interconnected with a bayonet-type connector.

[0023] Now referring back to FIGURE 1, to assemble the sections of such a fountain, an area (support surface 62) is located which is flat and suitable for the fountain. The base 52 column of the fountain is placed in the selected area (support surface 62), the bowl 22 of the fountain is placed onto the base 52 such that the two halves 66 and 68 of the bayonet-type connector 64 (one in the base 52 and one in the bowl 22) are mated. The bowl 22 is rotated with respect to the base 52 of the fountain to interconnect the bowl 22 and the base 52. The pump 10 is placed in the pump housing 32 which is disposed in the fountain bowl 22 and the power cord 12 for the pump 10 is routed through the tube 72 which, when the fountain is assembled, provides a passageway from the statue 14 into the base 52. The statue 14 is then placed onto the pump housing 32 so that the halves 48 and 50 of the bayonet-type connector 46 (one in the pump housing 32 and one in the statue 14) are mated. The statue 14 is rotated with respect to the pump housing 32 (and therefore the bowl 22) to interconnect the statue 14 and the pump housing/bowl (32 and 22). Tubing is attached to the pump discharge port as required for the fountain, water is added to the bowl, and electricity is supplied to the pump.

[0024] An embodiment having different types of bayonet connectors, or having one bayonet connector and another quick-connect connector of another type, is within the scope of the present invention.

[0025] The scope of the present invention also encompasses a fountain wherein no statue is present, thus having all the features shown in FIGURE 1 except the statue 14 and the first bayonet connector 46. In this embodiment, it is possible for the pump housing 22 to have a solid top with no opening 44, rather than the top 38 as shown in FIGURE 1.

5 Further, it is within the scope of the present invention for either the base 52 and bowl 22, or the statue 14, pump housing 32, and bowl 22 to be made as a one piece structure, so that one of either the first 46 or the second 64 bayonet connector is not needed.

[0026] The scope of the present invention also includes a placement other than a fountain, in which portions of the placement are interconnected via one or more bayonet

10 connectors. In addition, connectors other than bayonet-type connectors, which are quick-type connectors needing few or no tools to engage and which are used to interconnect portions of a placement, are within the scope of the present invention.

[0027] Although the present invention has been described with referenced to a presently preferred embodiment, it will be appreciated by those skilled in the art that

15 various modifications, alternatives, variations, etc., may be made without departing from the spirit and scope of the invention as defined in the appended claim.